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Reporting of conflicts of interest in oral presentations at medical conferences – a delegate-based prospective observational study

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Reporting of conflicts of interest in oral presentations at medical conferences – a delegate-based prospective observational study

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ABSTRACT

Objective: To assess the prevalence, location, presentation and consistency of conflict of interest statements in oral presentations at medical conferences

Design: Prospective, delegate-based observational study

Sample: 201 oral presentations at 5 medical conferences in 2016

Main outcome measures: Presence of a conflict of interest statement, its location within the presentation, and its duration of display. Concordance between conflict of interest disclosures in oral presentations and written abstracts or meeting speaker information

Results: Conflict of interest statements were present in 143/201 (71%) presentations (range for conferences 26-100%). 118 of the 141 evaluable statements (84%) were reported on a specific slide. Slides containing conflict of interest statements were displayed for a median (interquartile range) 2s (1-5), range for conferences 1.25-7.5s. Duration of display was shorter when the slide contained only the conflict of interest statement, 2s (1-3.5), than when it contained other information, 8s (3-17), but was not affected by type of presentation or whether a conflict of interest was disclosed. When a conflict of interest was disclosed, 27/84 (32%) presenters discussed an aspect of it. Discordance between the presence of a conflict of interest disclosure in the oral presentation and written formats occurred for 22% of presentations.

Conclusion: In oral presentations at medical conferences, conflict of interest statements are often missing, displayed too briefly to be read and understood, or not discussed/explained by

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the presenter. They are sometimes discordant with statements in the corresponding written formats. Conference delegates’ ability to assess the objectivity and quality of the information in oral presentations may therefore be diminished.

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Article Summary

Strengths and Limitations of this Study

- An analysis of conflict interest reporting at medical conferences in which data collection was undertaken in ‘real-time’ by delegate investigators
- Conferences sampled spanned a range of medical disciplines
- The sample of conferences and presentations was pragmatic, based on the investigators’ academic interests
- The study methodology did not permit an analysis of content of conflict of interest disclosure

Introduction

Conflicts of interest (COI) can compromise the integrity and objectivity of professional opinions, distort the interpretation of clinical research, and erode public trust.¹ Disclosure of COIs is widely promoted within academia, regarded as ‘an essential, though limited’ step in addressing the issue of potential bias.² It permits the recipients of medical research findings and educational presentations to consider the potential for the competing interest(s) to influence the content and tone of the presentation.

Medical conferences are common, highly influential vehicles for informing and educating health practitioners: as many as 100,000 may be held annually.³ Attendance contributes substantially to continuing medical education for many delegates. Oral presentations attract large audiences, and giving an oral presentation confers academic prestige. Commercial interest and involvement in medical conferences is strong, leading to concerns that such entities may have undue influence over programme content and faculty.^{3 4} In this setting, clear disclosure of COIs of presenters is important.

To date, limited research has been conducted on disclosure of COIs by speakers at medical conferences. In two disciplines, orthopaedics and oncology, COI disclosure was inconsistent⁵ and fleeting.⁶ We evaluated the prevalence, duration, presentation and consistency of COI disclosure in oral presentations at two international and three national conferences we attended in 2016. Our study was designed to evaluate these outcomes in ‘real-time’, from a delegate’s perspective.

Methods

Medical conferences

Four investigators conducted the assessments at five conferences in 2016: the US Endocrine Society (AG), the American College of Rheumatology (ND), the UK Continence Society (FS), the UK Congress on Obesity (AA), and Heart UK (AA). Our sample of conferences was pragmatic, being determined by our clinical or academic interests. Session attendance was also determined by investigators' interests, but all oral presentations attended were evaluated. Two conferences, those convened by the US Endocrine Society and the American College of Rheumatology, provided speakers with instructions about both the requirement for COI disclosure and its location within the presentation, the others did not. At one conference, the American College of Rheumatology, a meeting official screened presentations on site for the presence of a COI statement. Presentations were categorized as review or plenary (≥ 30 min), original research standard (10-15min) or short (3min), or other.

Data collection

Our study was conducted in real-time. At each oral presentation assessed, the investigator sat with a clear, unobstructed view of the projection screen, and in a location at which the presentation was clearly audible, and completed a standardised spreadsheet (Appendix).

Outcomes

Main outcomes were the presence of a COI statement, its location within the presentation, and its duration of display. Duration of display of the COI was estimated by the *sotto voce* conversational recital of 'one elephant, two elephant...' for the duration of the display, where each 'elephant' approximates one second.⁷

For each presentation, we also extracted COI information from the written abstract or speaker information in the conference programme, if either was available.

We recorded whether each presenter specifically discussed any aspect of a COI disclosure. If a presenter simply stated ‘These are my disclosures/conflicts of interest’ we did not code it as discussing the COI. We recorded whether the tone adopted to discuss a COI was serious or jokey/dismissive, as a subjective observation. We recorded examples of noteworthy terminology used by presenters in discussing COI disclosures.

Statistics

The composition and size of our sample of presentations were pragmatically determined by the structure of the contributing conferences and the interests of the delegate investigators. We report descriptive statistics as proportions or median (interquartile range, IQR). Comparisons between groups were made using the Mann Whitney U test.

Patient involvement

Patients were not involved in the design or conduct of this study.

Results

We evaluated 201 presentations - 79 reviews, 119 original research (93 standard, 26 short) and three patient perspectives (Table 1). One hundred and forty-three presentations (71%) included a COI statement (range for conferences 26-100%). For 2 presentations (1 American College of Rheumatology, 1 UK Continence Society), it was not recorded whether a COI was disclosed. For three presentations (1 US Endocrine Society, 1 UK Continence Society, 1 UK Congress on Obesity) duration of display of the COI statement was not recorded. Among the 141 evaluable presentations that included a COI statement, 84 (61%) disclosed at least one COI and 118 (84%) reported the COI on a slide that only contained the COI (range for conferences 45-100%).

Disclosure of conflicts of interest in oral presentations

Figure 1 shows the duration of display of slides containing the COI statements. Overall, the median (IQR) duration of display of slides containing the COI statements was 2s (1-5). The median duration of display varied from 1.25s to 7.5s at individual conferences. Figure 2 shows the relationships between duration of display and three potential modifiers. Duration of display of the COI statement was shorter when the statement was on a specific slide, 2s (1-3.5), n=117, than when it was on a slide containing other information, 8s (3-17), n=23, $P<0.0001$. It was similar in the presentations that disclosed at least one conflict of interest, 2s (1-6), n=83, and the presentations that disclosed no COI, 2s (1-4), n=55, $P=0.13$. It was similar in review/plenary presentations, 2s (1-5.3), n=50 and in other presentations, 2s (1-5.3), n=90, $P=0.42$.

Because of the very brief duration of display of most of the COI statements, we were rarely able to accurately count the number of individual COIs disclosed, or to discern their nature or relevance. Neither were our delegate investigators able to reliably ascertain whether COI statements referred to only the presenter or to the presenter and co-authors. In 27/84 (32%) presentations that contained a COI statement and disclosed at least one COI, the speaker explicitly discussed an aspect of it. When such an explicit discussion was undertaken, its tone was dismissive or jokey in 9/27 (33%) of instances (Box).

Comparison of conflict of interest statements in oral and written formats

Table 2 shows data on the relationships between conflict of interest statements in oral presentations and their corresponding written formats (abstracts or meeting speaker information). For 192/201 presentations, there was a corresponding written abstract and/or

speaker information in either the online or hard copy conference programme. For 3 conferences, the UK Continence Society, the UK Congress on Obesity and Heart UK, no COI statements were available for any of the meeting abstracts (n= 93) in their written formats. Therefore, in only 99 of 192 (52%) presentations was there a COI statement in both oral and written formats. For these 99 presentations we found discordance for the presence of a COI disclosure between the oral and written formats in 22 cases (22%) (Figure 3). A COI disclosure was found in the oral but not the written format in 17 of the 22 discordant cases, and in the written but not the oral format in 5 of the 22 discordant cases. The proportions of presentations discordant for the presence of a COI disclosure and of discordance attributable to absence of a COI disclosure in each format were similar at each evaluable conference.

Discussion

Main findings

Our study found that 29% of oral presentations at medical conferences did not comply with recommendations that COI disclosure be undertaken in academic discourse.² When present, COI statements are often displayed too briefly to read, let alone understand. Although duration of display of a COI statement might be influenced by time constraints for the presentation, it was similarly brief in longer review presentations and shorter original research presentations. Speakers seldom discussed or explained any aspect of their disclosed COIs, and sometimes adopted a dismissive or frivolous tone when doing so. COI statements were not present in 48% of the written formats corresponding to oral presentations. When COI statements were present in both oral presentations and the corresponding written formats, discordance in the presence of a COI disclosure between oral and written formats occurred in 22% of cases.

Limitations

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3 Necessarily, our study could not assess presentations at conferences focusing on medical
4 disciplines outside our clinical or academic interests. Collecting data in real-time is both a
5 strength, mimicking as closely as possible the experiences of conference delegates, and a
6 limitation, because it precludes analysis of the nature and relevance of the COI.
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11 12 13 14 *Context*

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16 Our study suggests delegates at medical conferences are unlikely to be able to accurately
17 assess the potential influence of COI on the content and conclusions of oral presentations.
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19 This is largely because COI statements are often not present, displayed too briefly to be read,
20 or not discussed in the context of the material being presented. Delegates who wish to obtain
21 information about COIs relevant to oral presentations from the corresponding written formats
22 may be thwarted by its absence from the latter, or misled because of inaccurate or discordant
23 disclosures. The frequent failure to achieve adequate communication of information about
24 COIs likely impairs the delegates' ability to assess the value and quality of the information
25 contained in the presentations. A systematic review reported that patients, physicians and
26 participants in clinical research all considered that financial COIs compromised the quality of
27 clinical care and research.⁸
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43 We found that rates of inclusion of COI statements in presentations varied among
44 conferences: higher rates were achieved when conference organisers provided specific
45 instructions and/or pursued policies to vet presentations for COI statements. However, these
46 policies did not necessarily enhance the delegates' knowledge or understanding of the COIs,
47 because the duration of display of the COI statements in presentations at those conferences
48 was as brief as that for the COI statements in the presentations at the conferences without
49 specific policies designed to promote inclusion of COI statements.
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We identified few studies similar to ours. However, Endo et al reported that only 72% of oral presentations at a dermatology conference included a COI statement, even after several strategies were applied to remind presenters of the requirement to do so.⁹ In addition, two studies reported display times of 3s and 5s, respectively, for slides containing COI information at orthopaedic and oncology meetings respectively.^{6 10} Finally, 9% of presenters who gave oral presentations at each of two conferences on arthroplasty in the same calendar year disclosed financial COIs at one meeting but not the other.¹¹ Each of these results is broadly consistent with our findings, and suggest that the results we report apply generally across conferences in medical disciplines other than those we assessed.

Conclusions and Implications

To avoid paying lip-service to COIs in conference presentations, improvements could be made in several areas and both conference organisers and presenters can contribute. Disclosure statements should be required and their presence audited. Efforts to standardise the content and focus of COI statements, such as those initiated by the Institute of Medicine,¹² should be supported and applied by conference organisers. COI statements by presenters should be displayed long enough to permit understanding, and their relevance adequately discussed. Adequate time should be allowed for speakers to discuss COIs in the context of their presentations. Innovative strategies such as displaying COI statements during question time, or having the session chairperson include a COI statement as part of the introduction of the presentation, could be trialled. Finally, presenters should explain any discordance between the content of disclosures in oral and written formats.

Contributors' statements. All authors are academics with a research interest in translation of evidence into clinical practice. AG, AA and MJB conceived and designed the study. AG, AA, ND and FS collected the data. AG performed the statistical analyses. AG wrote the draft manuscript. All authors reviewed and approved the final submission. AG is the guarantor of the paper.

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Conflict of interest statement. All authors have completed the ICMJE unified disclosure form competing interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author). None of the authors was involved in any aspect of the organisation of the conference(s) they attended. AG is a shareholder in Auckland Bone Density, a company that provides bone mineral density measurements. ND discloses consulting fees, speaker fees or grants from Takeda, Menarini, Teijin, Pfizer, Ardea Biosciences, AstraZeneca, Crealta, Fonterra, Cymabay and Abbvie. FS gave an oral presentation at the conference she attended. Her attendance was funded by the Cochrane Incontinence Group, the largest single funder of which is The National Institute for Health Research. AA and MB have no financial conflict to interest to declare.

AG and MB have co-authored publications on conflicts of interest in the interpretation and dissemination of clinical research findings. All authors consider that conflicts of interest are potentially important in the interpretation and dissemination of research findings.

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Transparency statement. AG affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained

Ethical approval. Not required

Data sharing. Data available upon request for academic researchers

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Box. Examples of dismissive or jokey approaches to discussing conflict of interest disclosure

“[*Company X*] have funded me to do disease state talks and the creativity of the company has been appreciated”

“Here are my potential conflicts of interest: I’ve been very bad (*pointing to list of commercial conflicts*) and very lucky (*pointing to grant funding*)”

“These are my disclosures, none are particularly relevant”. No explanatory statement

"Here are my conflicts. If you don't like them, I have more"

"I work with a lot of companies" Speaker claimed requirement for academic-industry “collaboration” to “help our patients”, did not explain nature of multiple listed conflicts of interest

"I'll come back to these later" but did not do so

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Figure Legends

Figure 1. Duration of display of slides containing conflict of interest statements in oral presentations at medical conferences. US Endo Society, United States Endocrine Society; ACR, American College of Rheumatology; UKCS, United Kingdom Continence Society; UKCO, United Kingdom Congress on Obesity; Heart UK, Heart United Kingdom. Data are median, interquartile range, range.

Figure 2. Duration of display of slides containing conflict of interest statements in oral presentations at medical conferences. COI, conflict of interest. Data are median, interquartile range, range

Figure 3. Discordance between oral presentations at medical conferences and the corresponding written formats (written abstract or speaker information). COI, conflict of interest; US Endo Society, United States Endocrine Society; ACR, American College of Rheumatology. No oral presentations at the other conferences had conflict of interest statements present in both oral presentations and the corresponding written formats

Table 1. Characteristics of conferences, oral presentations and conflict of interest (COI) statements.

Conference	COI disclosure guidance provided	Presentations assessed	COI statement included	COI statement on its own slide	At least 1 COI disclosed
		N	N/N (%)	N/N (%)	N/N (%)
US Endocrine Society	Yes ^a	64	54/64 (84%)	51/54 ^c (94%)	33/54 (61%)
American College of Rheumatology	Yes ^{a,b}	45	45/45 (100%)	45/45 (100%)	26/44 ^e (59%)
UK Continence Society	No	43	31/43 (72%)	14/31 ^c (45%)	12/30 ^e (40%)
UK Congress on Obesity	No	26	7/26 (27%)	4/7 ^d (57%)	7/7 (100%)
Heart UK	No	23	6/23 (26%)	4/6 ^d (67%)	6/6 (100%)
Total		201	143/201 (71%)	118/143 (83%)	84/141 (60%)

a, COI statement should be on second slide of presentation

b, meeting representative checked presentations for compliance with presence and location of COI statement

c, remaining COI statements were on title slides

d, remaining COI statements were on title slide or conclusion slide

e, not recorded for 1 presentation

Table 2. Conflicts of interest (COI) and disclosures in oral presentations and meeting programme^a

Conference	Oral presentations with corresponding written abstract or speaker information	COI statement present in both oral presentation and written abstract or speaker information
	N	N/N (%)
US Endocrine Society	64	54/64 (84%)
American College of Rheumatology	45	45/45 (100%)
UK Continence Society	43	0/43 (0%)
UK Congress on Obesity	19 ^b	0/19 (0%)
Heart UK	21 ^c	0/21 (0%)
Total	192	99/192 (52%)

a, written presentation abstract or speaker faculty information
b, for 7 presentations, neither written abstract nor speaker information was available
c, for 2 presentations, neither written abstract nor speaker information was available

Figure 1

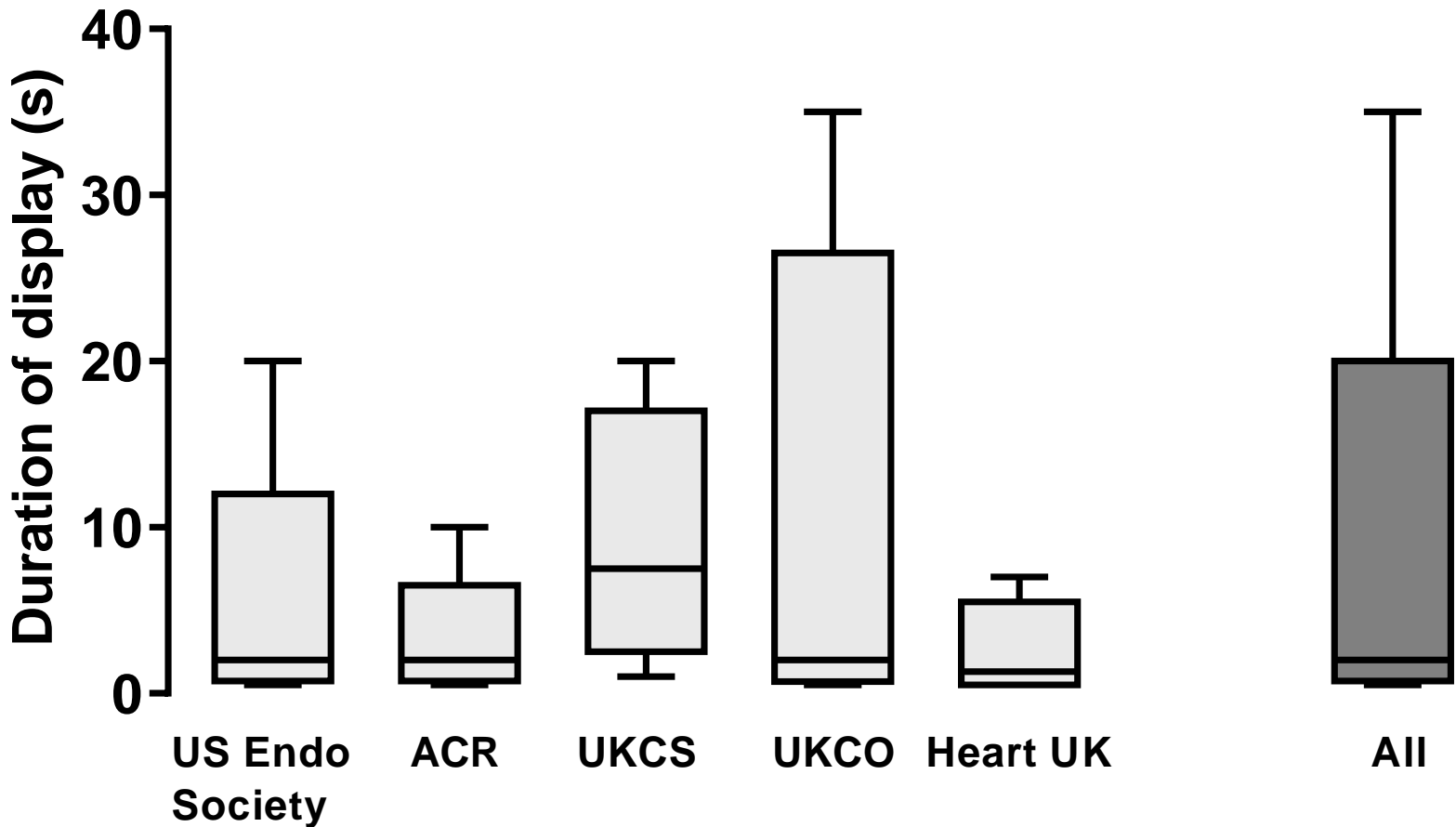


Figure 2

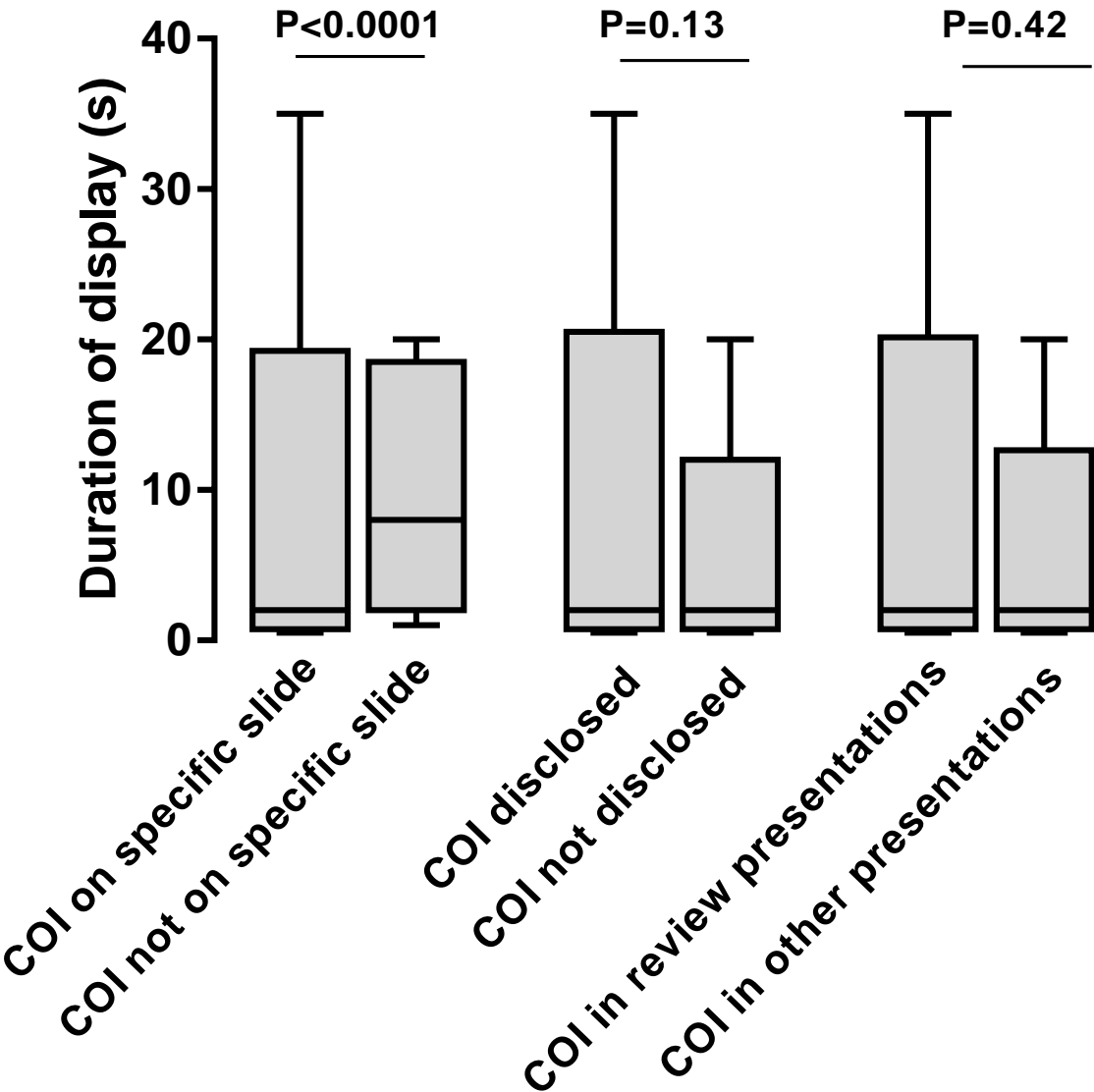
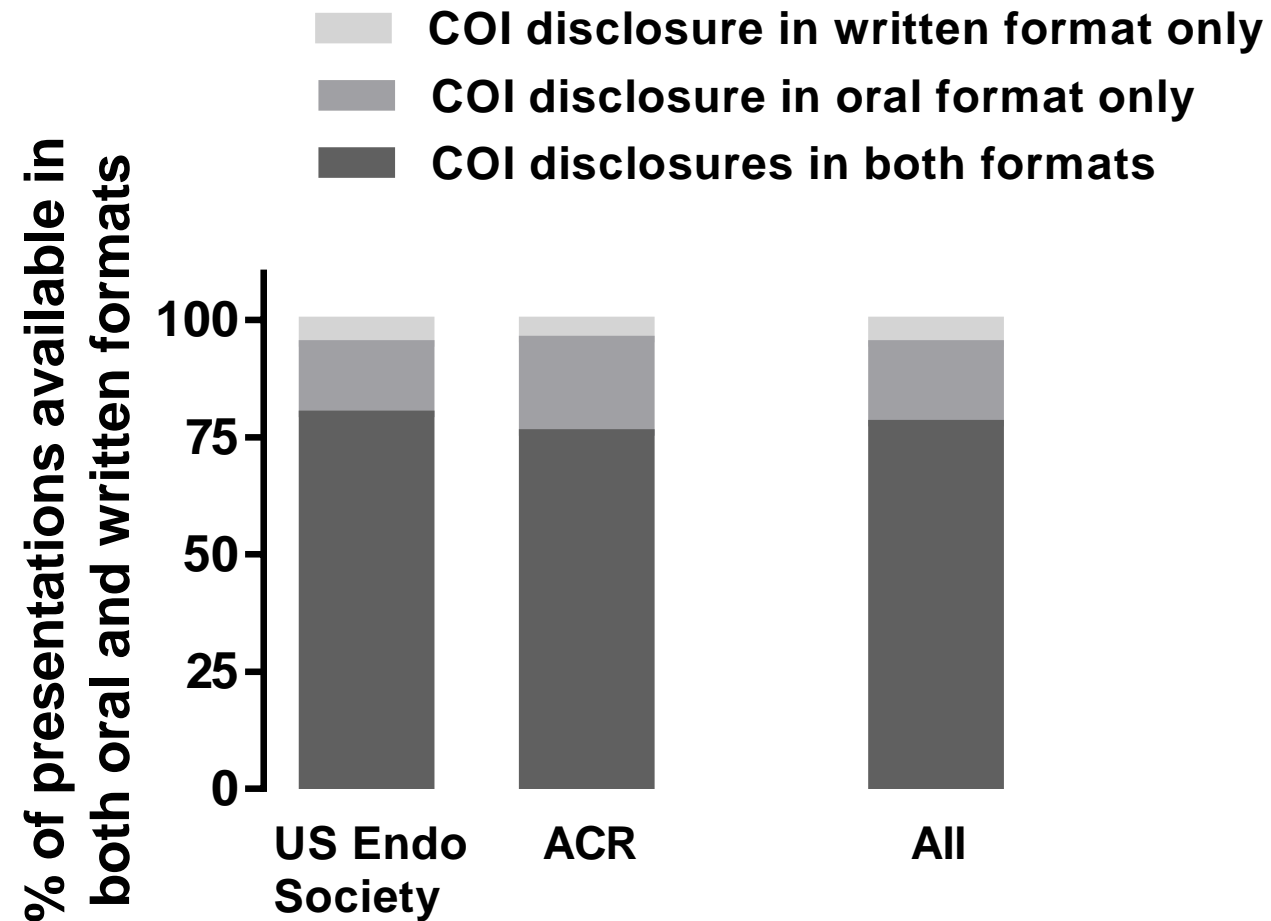


Figure 3

Appendix. Data collected by delegate investigators for each oral presentation

Abstract #	
Single author?	
Presenting author	
COI statement (Y/N)	
COI disclosed (Y/N)	
COI listed on slide #	
Duration of disclosure (s)	
Presenter COI only?	
Number of COIs	
Nature of COIs (Research Funding, Speaker, Consulting, Stock, Other)	
Tone of disclosure	
Explicit referral to COI (Y/N)	
Comments	
COIs in online programme - written abstract or speaker information	

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ABSTRACT

Objective: To assess the prevalence, location, presentation and consistency of conflict of interest statements in oral presentations at medical conferences

Design: Prospective, delegate-based observational study

Sample: 201 oral presentations at 5 medical conferences in 2016

Main outcome measures: Presence of a conflict of interest statement, its location within the presentation, and its duration of display. Concordance between conflict of interest disclosures in oral presentations and written abstracts or meeting speaker information

Results: Conflict of interest statements were present in 143/201 (71%) presentations (range for conferences 26-100%). 118 of the 141 evaluable statements (84%) were reported on a specific slide. Slides containing conflict of interest statements were displayed for a median (interquartile range) 2s (1-5), range for conferences 1.25-7.5s. Duration of display was shorter when the slide contained only the conflict of interest statement, 2s (1-3.5), than when it contained other information, 8s (3-17), but was not affected by type of presentation or whether a conflict of interest was disclosed. When a conflict of interest was disclosed, 27/84 (32%) presenters discussed an aspect of it. Discordance between the presence of a conflict of interest disclosure in the oral presentation and written formats occurred for 22% of presentations.

Conclusion: In oral presentations at the medical conferences we assessed, conflict of interest statements were often missing, displayed too briefly to be read and understood, or not

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Article Summary

Strengths and Limitations of this Study

- An analysis of conflict interest reporting at medical conferences in which data collection was undertaken in ‘real-time’ by delegate investigators
- Conferences sampled spanned five medical disciplines, but may not be generalisable to all disciplines
- The sample of conferences and presentations was determined pragmatically, based on the investigators’ academic interests, not randomly selected
- The study methodology did not permit an analysis of content of conflict of interest disclosure

Introduction

Conflicts of interest (COIs) can compromise the integrity and objectivity of professional opinions, distort the interpretation of clinical research, and erode public trust.¹ Disclosure of COIs is widely promoted within academia, regarded as ‘an essential, though limited’ step in addressing the issue of potential bias.² It permits the recipients of medical research findings and educational presentations to consider the potential for the competing interest(s) to influence the content and tone of the presentation.

Medical conferences are common, highly influential vehicles for informing and educating health practitioners: as many as 100,000 may be held worldwide annually.³ Attendance contributes substantially to continuing medical education for many delegates. Oral presentations attract large audiences, and giving an oral presentation confers academic prestige. Commercial interest and involvement in medical conferences is strong, leading to concerns that such entities may have undue influence over programme content and faculty.^{3 4} In this setting, clear disclosure of COIs of presenters is important.

To date, limited research has been conducted on disclosure of COIs by speakers at medical conferences. In two disciplines, orthopaedics and oncology, COI disclosure was inconsistent⁵ and fleeting.⁶ We evaluated the prevalence, duration, presentation and consistency of COI disclosure in oral presentations at two international and three national conferences we attended in 2016. Our study was designed to evaluate these outcomes in ‘real-time’, from a delegate’s perspective.

Methods

Medical conferences

Four investigators conducted the assessments at five conferences in 2016: the US Endocrine Society (AG), the American College of Rheumatology (ND), the UK Continence Society (FS), the UK Congress on Obesity (AA), and Heart UK (AA). Our sample of conferences was pragmatic, being determined by our clinical or academic interests. Session attendance was also determined by investigators' interests, but all oral presentations attended were evaluated. Two conferences, those convened by the US Endocrine Society and the American College of Rheumatology, provided speakers with instructions about both the requirement for COI disclosure and its location within the presentation, the others did not. At one conference, the American College of Rheumatology, a meeting official screened presentations on site for the presence of a COI statement. Presentations were categorized as review or plenary (≥ 30 min), original research standard (10-15min) or short (3min), or other.

Data collection

Our study was conducted in real-time. A single investigator gathered data at each conference. At each oral presentation assessed, the investigator sat with a clear, unobstructed view of the projection screen, and in a location at which the presentation was clearly audible, and completed a standardised spreadsheet (Appendix).

Outcomes

Main outcomes were the presence of a COI statement, its location within the presentation, and its duration of display. Duration of display of the COI was estimated by the *sotto voce* conversational recital of 'one elephant, two elephant...' for the duration of the display, where each 'elephant' approximates one second.⁷

For each presentation, we also extracted COI information from the written abstract or speaker information in the conference programme, if either was available.

We recorded whether each presenter specifically discussed any aspect of a COI disclosure. If a presenter simply stated ‘These are my disclosures/conflicts of interest’ we did not code it as discussing the COI. We recorded whether the tone adopted to discuss a COI was serious or jokey/dismissive, as a subjective observation. We recorded examples of noteworthy terminology used by presenters in discussing COI disclosures.

Statistics

The composition and size of our sample of presentations were pragmatically determined by the structure of the contributing conferences and the interests of the delegate investigators. We report descriptive statistics as proportions or median (interquartile range, IQR). Comparisons between groups were made using the Mann Whitney U test.

Patient involvement

Patients were not involved in the design or conduct of this study. Because ours was an observational study in public where participants are not identified, ethical approval was not required.

Results

We evaluated 201 presentations - 79 reviews, 119 original research (93 standard, 26 short) and three patient perspectives (Table 1). One hundred and forty-three presentations (71%) included a COI statement (range for conferences 26-100%). For 2 presentations (1 American College of Rheumatology, 1 UK Continence Society), it was not recorded whether a COI was

disclosed. For three presentations (1 US Endocrine Society, 1 UK Continence Society, 1 UK Congress on Obesity) duration of display of the COI statement was not recorded. Among the 141 evaluable presentations that included a COI statement, 84 (61%) disclosed at least one COI and 118 (84%) reported the COI on a slide that only contained the COI (range for conferences 45-100%).

Disclosure of conflicts of interest in oral presentations

Figure 1 shows the duration of display of slides containing the COI statements. Overall, the median (IQR) duration of display of slides containing the COI statements was 2s (1-5). The median duration of display varied from 1.25s to 7.5s at individual conferences. Figure 2 shows the relationships between duration of display and three potential modifiers. Duration of display of the COI statement was shorter when the statement was on a specific slide, 2s (1-3.5), n=117, than when it was on a slide containing other information, 8s (3-17), n=23, $P<0.0001$. It was similar in the presentations that disclosed at least one conflict of interest, 2s (1-6), n=83, and the presentations that disclosed no COI, 2s (1-4), n=55, $P=0.13$. It was similar in review/plenary presentations, 2s (1-5.3), n=50 and in other presentations, 2s (1-5.3), n=90, $P=0.42$.

Because of the very brief duration of display of most of the COI statements, we were rarely able to accurately count the number of individual COIs disclosed, or to discern their nature or relevance. Neither were our delegate investigators able to reliably ascertain whether COI statements referred to only the presenter or to the presenter and co-authors. In 27/84 (32%) presentations that contained a COI statement and disclosed at least one COI, the speaker explicitly discussed an aspect of it. When such an explicit discussion was undertaken, its tone was dismissive or jokey in 9/27 (33%) of instances (Box).

Comparison of conflict of interest statements in oral and written formats

Table 2 shows data on the relationships between conflict of interest statements in oral presentations and their corresponding written formats (abstracts or meeting speaker information). For 192/201 presentations, there was a corresponding written abstract and/or speaker information in either the online or hard copy conference programme. For 3 conferences, the UK Continence Society, the UK Congress on Obesity and Heart UK, no COI statements were available for any of the meeting abstracts (n= 93) in their written formats. Therefore, in only 99 of 192 (52%) presentations was there a COI statement in both oral and written formats. For these 99 presentations we found discordance for the presence of a COI disclosure between the oral and written formats in 22 cases (22%) (Figure 3). A COI disclosure was found in the oral but not the written format in 17 of the 22 discordant cases, and in the written but not the oral format in 5 of the 22 discordant cases. The proportions of presentations discordant for the presence of a COI disclosure and of discordance attributable to absence of a COI disclosure in each format were similar at each evaluable conference.

Discussion

Main findings

In our sample, 29% of oral presentations at medical conferences did not include a COI statement, and therefore did not comply with recommendations that COI disclosure be undertaken in academic discourse.² When present, COI statements were often displayed too briefly to read, let alone understand. Although the duration of display of a COI statement might be influenced by time constraints for the presentation, it was similarly brief in longer review presentations and shorter original research presentations. The longer duration of display of COI statements when they were presented on slides that contained other information suggests that the other information was responsible for the longer display.

Speakers seldom discussed or explained any aspect of their disclosed COIs, and sometimes adopted a dismissive or frivolous tone when doing so. COI statements were not present in 48% of the written formats corresponding to oral presentations. When COI statements were present in both oral presentations and the corresponding written formats, discordance in the presence of a COI disclosure between oral and written formats occurred in 22% of cases.

Limitations. Although our study assessed presentations at meetings spanning 5 disciplines, our results might not apply to other medical specialities. Collecting data in real-time is both a strength, mimicking as closely as possible the experiences of conference delegates, and a limitation, because it precludes analysis of the nature and relevance of the COI. Data were collected for each oral presentation by a single investigator. We did not randomly select the presentations assessed, instead taking a pragmatic approach which is likely to approximate the behaviour of most conference delegates.

Context

Our study suggests delegates at medical conferences may be unable to accurately assess the potential influence of COI on the content and conclusions of oral presentations. This could occur because COI statements may frequently be absent, displayed too briefly to be read, or not discussed in the context of the material being presented. Delegates who wish to obtain information about COIs relevant to oral presentations from the corresponding written formats may be thwarted by their absence from the latter, or misled because of inaccurate or discordant disclosures. Failure to achieve adequate communication of information about COIs might impair the delegates' ability to assess the value and quality of the information contained in the presentations. A systematic review reported that patients, physicians and

participants in clinical research all considered that financial COIs compromised the quality of clinical care and research.⁸

We found that rates of inclusion of COI statements in presentations varied among conferences: higher rates were achieved when conference organisers provided specific instructions and/or pursued policies to vet presentations for COI statements. However, these policies did not necessarily enhance the delegates' knowledge or understanding of the COIs, because the duration of display of the COI statements in presentations at those conferences was as brief as that for the COI statements in the presentations at the conferences without specific policies designed to promote inclusion of COI statements. Among conferences that did not provide instructions about COI statements, the UK Continence Society meeting achieved a higher rate of inclusion of statements. The reason for this is uncertain, but it might reflect heightened awareness of COIs arising from controversy about financial conflicts of interest over transvaginal mesh devices (personal communication Emeritus Professor Cathryn Glazener).

We identified few studies similar to ours. However, Endo et al reported that only 72% of oral presentations at a dermatology conference included a COI statement, even after several strategies were applied to remind presenters of the requirement to do so.⁹ In addition, two studies reported display times of 3s and 5s, respectively, for slides containing COI information at orthopaedic and oncology meetings respectively.^{6 10} Finally, 9% of presenters who gave oral presentations at each of two conferences on arthroplasty in the same calendar year disclosed financial COIs at one meeting but not the other.¹¹ Each of these results is broadly consistent with our findings, and suggest that the results we report apply generally across conferences in medical disciplines other than those we assessed.

Conclusions and Implications

Our study suggests that management of COI at medical meetings may be suboptimal. To avoid paying lip-service to COIs in conference presentations, improvements could be made in several areas and both conference organisers and presenters can contribute. Disclosure statements should be required and their presence audited. Efforts to standardise the content and focus of COI statements, such as those initiated by the Institute of Medicine,¹² should be supported and applied by conference organisers. COI statements by presenters should be displayed long enough to permit understanding, and their relevance adequately discussed.. Innovative strategies such as displaying COI statements during question time, or having the session chairperson include a COI statement as part of the introduction of the presentation, could be trialled. Finally, presenters should explain any discordance between the content of disclosures in oral and written formats.

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Conflict of interest statement. All authors have completed the ICMJE unified disclosure form competing interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author). None of the authors was involved in any aspect of the organisation of the conference(s) they attended. AG is a shareholder in Auckland Bone Density, a company that provides bone mineral density measurements. ND discloses consulting fees, speaker fees or grants from Takeda, Menarini, Teijin, Pfizer, Ardea Biosciences, AstraZeneca, Crealta, Fonterra, Cymabay and Abbvie. FS gave an oral presentation at the conference she attended. Her attendance was funded by the Cochrane Incontinence Group, the largest single funder of which is The National Institute for Health Research. AA and MB have no financial conflict to interest to declare.

AG and MB have co-authored publications on conflicts of interest in the interpretation and dissemination of clinical research findings. All authors consider that conflicts of interest are potentially important in the interpretation and dissemination of research findings.

Transparency statement. AG affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained

Ethical approval. Not required

Data sharing. Data available upon request for academic researchers

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Box. Examples of dismissive or jokey approaches to discussing conflict of interest disclosure

“[Company X] have funded me to do disease state talks and the creativity of the company has been appreciated”

“Here are my potential conflicts of interest: I’ve been very bad (*pointing to list of commercial conflicts*) and very lucky (*pointing to grant funding*)”

“These are my disclosures, none are particularly relevant”. No explanatory statement

"Here are my conflicts. If you don't like them, I have more"

"I work with a lot of companies" Speaker claimed requirement for academic-industry “collaboration” to “help our patients”, did not explain nature of multiple listed conflicts of interest

"I'll come back to these later" but did not do so

Figure Legends

Figure 1. Duration of display of slides containing conflict of interest statements in oral presentations at medical conferences. US Endo Society, United States Endocrine Society; ACR, American College of Rheumatology; UKCS, United Kingdom Continence Society; UKCO, United Kingdom Congress on Obesity; Heart UK, Heart United Kingdom. Data are median, interquartile range, range.

Figure 2. Duration of display of slides containing conflict of interest statements in oral presentations at medical conferences. COI, conflict of interest. Data are median, interquartile range, range

Figure 3. Discordance between oral presentations at medical conferences and the corresponding written formats (written abstract or speaker information). COI, conflict of interest; US Endo Society, United States Endocrine Society; ACR, American College of Rheumatology. No oral presentations at the other conferences had conflict of interest statements present in both oral presentations and the corresponding written formats

Table 1. Characteristics of conferences, oral presentations and conflict of interest (COI) statements.

Conference	COI disclosure guidance provided	Presentations assessed	COI statement included	COI statement on its own slide	At least 1 COI disclosed
		N	N/N (%)	N/N (%)	N/N (%)
US Endocrine Society	Yes ^a	64	54/64 (84%)	51/54 ^c (94%)	33/54 (61%)
American College of Rheumatology	Yes ^{a,b}	45	45/45 (100%)	45/45 (100%)	26/44 ^e (59%)
UK Continence Society	No	43	31/43 (72%)	14/31 ^c (45%)	12/30 ^e (40%)
UK Congress on Obesity	No	26	7/26 (27%)	4/7 ^d (57%)	7/7 (100%)
Heart UK	No	23	6/23 (26%)	4/6 ^d (67%)	6/6 (100%)
Total		201	143/201 (71%)	118/143 (83%)	84/141 (60%)

a, COI statement should be on second slide of presentation
b, meeting representative checked presentations for compliance with presence and location of COI statement
c, remaining COI statements were on title slides
d, remaining COI statements were on title slide or conclusion slide
e, not recorded for 1 presentation

Table 2. Conflicts of interest (COI) and disclosures in oral presentations and meeting programme^a

Conference	Oral presentations with corresponding written abstract or speaker information	COI statement present in both oral presentation and written abstract or speaker information
	N	N/N (%)
US Endocrine Society	64	54/64 (84%)
American College of Rheumatology	45	45/45 (100%)
UK Continence Society	43	0/43 (0%)
UK Congress on Obesity	19 ^b	0/19 (0%)
Heart UK	21 ^c	0/21 (0%)
Total	192	99/192 (52%)

a, written presentation abstract or speaker faculty information

b, for 7 presentations, neither written abstract nor speaker information was available

c, for 2 presentations, neither written abstract nor speaker information was available

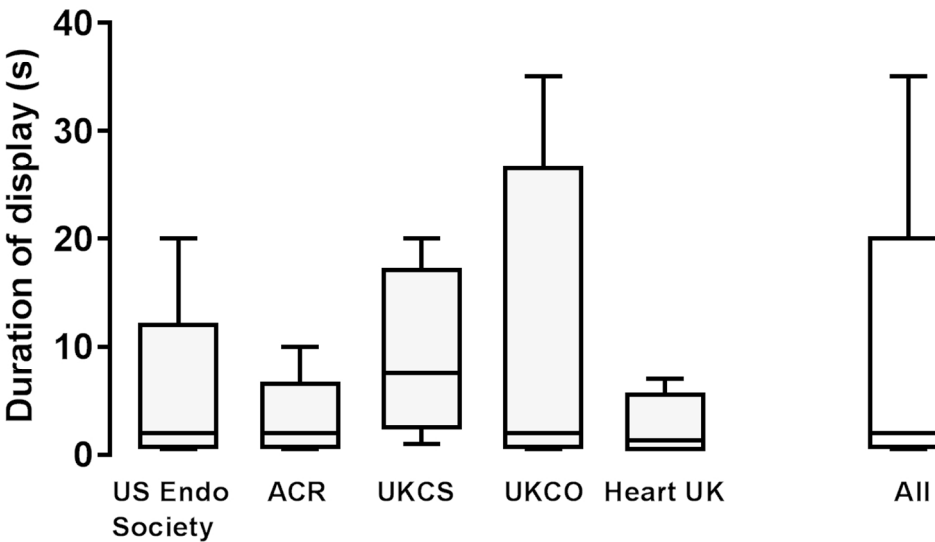


Figure 1. Duration of display of slides containing conflict of interest statements in oral presentations at medical conferences. US Endo Society, United States Endocrine Society; ACR, American College of Rheumatology; UKCS, United Kingdom Continence Society; UKCO, United Kingdom Congress on Obesity; Heart UK, Heart United Kingdom. Data are median, interquartile range, range.

117x72mm (300 x 300 DPI)

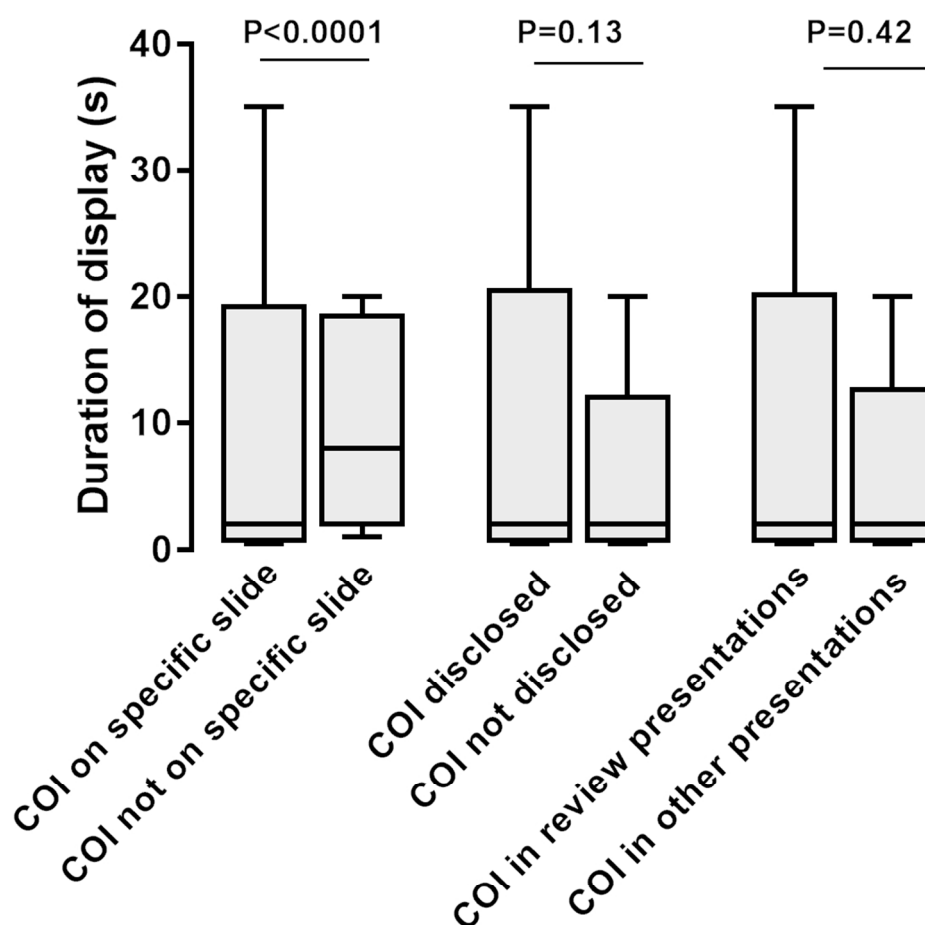


Figure 2. Duration of display of slides containing conflict of interest statements in oral presentations at medical conferences. COI, conflict of interest. Data are median, interquartile range, range

100x101mm (300 x 300 DPI)

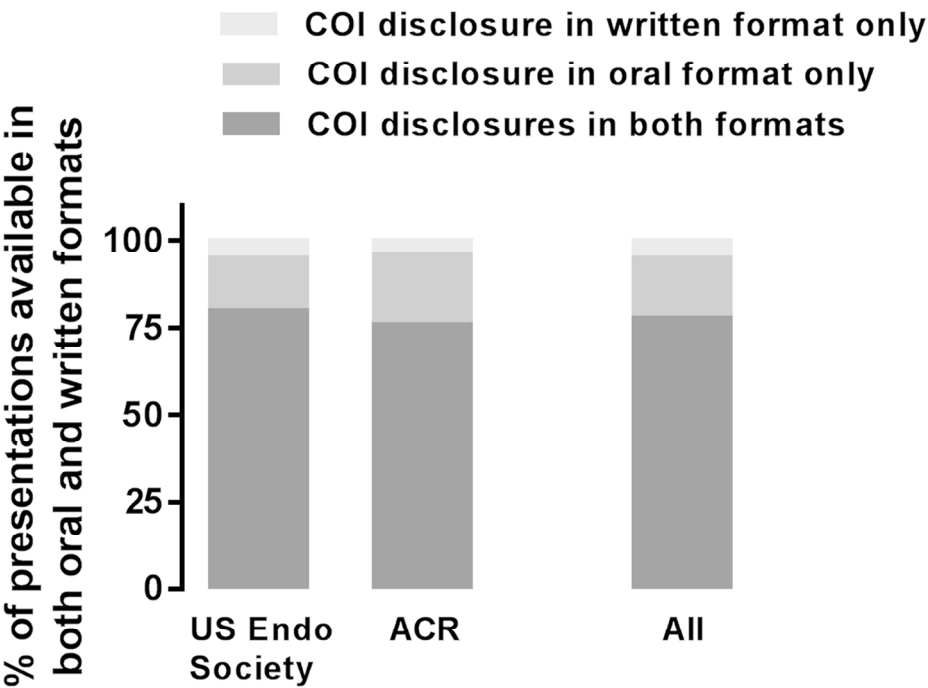


Figure 3. Discordance between oral presentations at medical conferences and the corresponding written formats (written abstract or speaker information). COI, conflict of interest; US Endo Society, United States Endocrine Society; ACR, American College of Rheumatology. No oral presentations at the other conferences had conflict of interest statements present in both oral presentations and the corresponding written formats

104x78mm (300 x 300 DPI)

Appendix. Data collected by delegate investigators for each oral presentation

Abstract #	
Single author?	
Presenting author	
COI statement (Y/N)	
COI disclosed (Y/N)	
COI listed on slide #	
Duration of disclosure (s)	
Presenter COI only?	
Number of COIs	
Nature of COIs (Research Funding, Speaker, Consulting, Stock, Other)	
Tone of disclosure	
Explicit referral to COI (Y/N)	
Comments	
COIs in online programme - written abstract or speaker information	